No. 9100121

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Harris Moran Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TOMATO

'Orion'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D.C. *this* 31st *day of* December *in the year of our Lord one thousand nine hundred and* ninety-two.

Attest:

Kenneth A. Evans

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Edward Madigan

Secretary of Agriculture

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Office, OIRM, Room 404-W, Washington, D.C. 20250; and to the Office of Management and Budget, Paperwork Reduction Project (OMB #0581-0055), Washington, 20250.
FORM APPROVED: OMB 0581-0055, Expires 1/31/91

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
HARRIS MORAN SEED COMPANY

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.
HMX 9853

3. VARIETY NAME
ORION

4. ADDRESS *(street and no. or R.F.D. no., city, state, and ZIP)*
26239 EXECUTIVE PLACE
HAYWARD, CALIFORNIA 94545

5. PHONE *(Include area code)*
(415) 785-8880

FOR OFFICIAL USE ONLY

PVPO NUMBER
9100121

FILING
Date: Feb. 21, 1991
Time: ☐ A.M. ☐ P.M.

FEES RECEIVED
Filing and Examination Fee: $ 2150.00
Date: Feb. 19, 1991
Certificate Fee: $ 250.00
Date: Nov. 16, 1992

6. GENUS AND SPECIES NAME
Lycopersicon esculentum

7. FAMILY NAME *(Botanical)*
Solanaceae

8. CROP KIND NAME *(Common Name)*
Tomato

9. DATE OF DETERMINATION
August 1988

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation (Company)

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Maryland

12. DATE OF INCORPORATION
1/11/85

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Joseph P. Jacobs
Harris Moran Seed Company
RR 1 Box 1243
Davis, CA 95616

PHONE *(Include area code)*: (916) 756-1382

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow INSTRUCTIONS on reverse)*

a. ☒ Exhibit A, Origin and Breeding History of the Variety.
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety.
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.
f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office _____.
g. ☒ Filing and Examination Fee ($2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See section 83(a) of the Plant Variety Protection Act.)*
☐ YES *(If "YES," answer items 16 and 17 below)* ☒ NO *(If "NO," skip to item 18 below)*

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ YES *(If "YES," through* ☐ Plant Variety Protection Act ☐ Patent Act. Give date: _____.)
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES (If "YES," give names of countries and dates)
☒ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE
Joseph P. Jacobs	PLANT BREEDER	2/14/91
SIGNATURE OF APPLICANT *(Owner(s))*	CAPACITY OR TITLE	DATE

EXHIBIT A

Origin and Breeding History of Variety

ORION originated from a cross made in 1983 between a proprietary nematode resistant line (BR 340) and the protected variety HM 3075 (PVP #8300172).

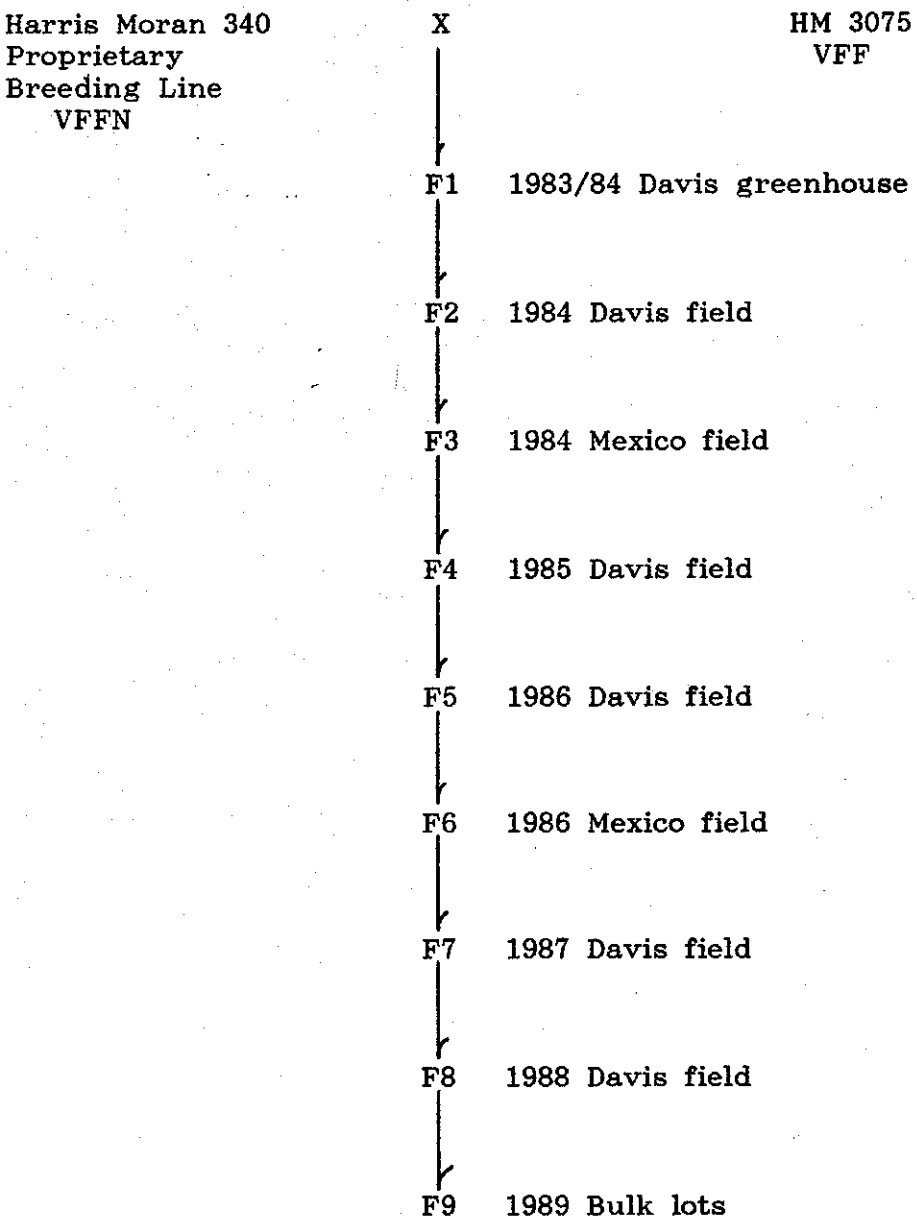
The initial cross was followed by 8 generations of selfing and single plant selections. Two generations per year were produced, the first in Davis, California, and the second in Los Mochis, Mexico.

At every generation, single plant selections were based on horticultural type as well as resistance to southern root knot nematode (Meloidogyne), Verticillium race 1 (Verticillium albo-atrum), and Fusarium races 1 and 2 (Fusarium oxysporum f.sp. lycopersici).

In 1987, one of the single plant progeny, plot 1536, was selected for further evaluation. This line was uniform for horticultural type, and homozygous for resistance to root knot nematode, Verticillium race 1, and Fusarium races 1 and 2. This selection was designated HMX 9853. During 1988-1990, HMX 9853 was evaluated in field trials for its commercial and processing qualities. In January 1991, HMX 9853 was named ORION.

EXHIBIT A: BREEDING HISTORY

CROSSING SCHEMATIC



F2 - F8: Selection pressure is for HM 3075 fruit and horticultural type as well as resistance to southern root knot nematode resistance, Verticillium race 1, Fusarium races 1 and 2.

9100121

HARRIS MORAN™ SEED COMPANY

DAVIS RESEARCH CENTER
R.R. 1 Box 1243
Davis, CA 95616 USA
TEL: (916) 756-1382 • FAX: (916) 756-1016

EXHIBIT A ADDENDUM

Origin and Breeding History of Variety

Since the 1989 seed production of ORION, three successive generations have been analyzed for uniformity. ORION is now uniform to type and breeds true for root-knot nematode resistance. No field variants have been found. Successive disease screens indicate ORION is homozygous resistant against Verticillium, Fusarium races 1 and 2 and Root-knot nematode resistance.

EXHIBIT B

Novelty Statement

ORION most closely resembles HM 3075. However, ORION is genetically resistant to southern root knot nematode whereas HM 3075 is susceptible.

9100121

FORM APPROVED: OMB NO. 0581-0055

EXHIBIT C
(Tomato)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
~~LIVESTOCK, MEAT, GRAIN AND SEED DIVISION~~
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY

TOMATO *(Lycopersicon esculentum* Mill.)

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
HARRIS MORAN SEED COMPANY	ORION	"ORION"

ADDRESS *(Street and No., or R.F.D. No., City, State, and Zip Code)*
26239 EXECUTIVE PLACE
HAYWARD, CA 94545

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PVPO NUMBER
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Choose responses for the following characters which best fit your variety. Complete this form as fully as possible for best characterization of the variety. When a single quantitative value is requested (e.g., fruit weight), your answer should be the mean of an adequate-sized, unbiased sample of plants. Use leading zeroes when necessary (e.g., [0][9] or [0][8][1], etc.). The applicant variety should be compared with at least one well-known standard check variety of the same type (see list of recommended check varieties below), and grown in the same trials. The characters on this form should be described from plants grown under normal conditions of culture for the variety. Indicate by a check whether trial data are from greenhouse ____ or field ____ plantings. Trials direct-seeded X or transplanted ____; staked ____ or unstaked ____. Give locations and dates of seeding and transplanting here: WOODLAND 4/4/90, DAVIS 4/11/90, FIREBAUGH 2/23/90
SACRAMENTO 4/4/91, WOODLAND 6/3/91, FIREBAUGH 7/18/91

COMPARISONS SHOULD BE MADE TO ONE OR MORE CHECK VARIETIES IN THE FOLLOWING LIST, IF AT ALL POSSIBLE. ENTER THE NUMBER OF THE CHECK IN BOXES WHERE IDENTITY OF CHECK IS REQUESTED.

1 = Ace 55 VF
2 = Campbell 37
3 = Chico III
4 = Flora Dade
5 = Florida MH-1
6 = Heinz 1350
7 = Homestead 24
8 = Marglobe
9 = Murietta
10 = New Yorker
11 = Ohio MR-13
12 = Red Cherry Large
13 = Red Rock
14 = Roma VF
15 = Rutgers
16 = Sunray
17 = Tropic
18 = UC 82
19 = VF 134
20 = US 28
21 = VF 145 B 7879
22 = Other *(Specify)* HM 3075

1. SEEDLING:

[2] Anthocyanin in hypocotyl of 2-15 cm. seedling: 1 = Absent 2 = Present

[1] Habit of 3-4 week old seedling: 1 = Normal 2 = Compact

2. MATURE PLANT (at maximum vegetative development):

[2][1.][5] Cm. Height

[2] Growth: 1 = Indeterminate 2 = Determinate

[3] Form: 1 = Lax, open 2 = Normal 3 = Compact 4 = Dwarf 5 = Brachytic

[2] Size of canopy (compared to others of similar type): 1 = Small 2 = Medium 3 = Large

[2] Habit: 1 = Sprawling (decumbent) 2 = Semi-erect 3 = Erect ('Dwarf Champion')

3. STEM:

[3] Branching: 1 = Sparse ('Brehm's Solid Red', 'Fireball') 2 = Intermediate ('Westover') 3 = Profuse ('UC 82')

[1] Branching at cotyledonary or first leafy node: 1 = Present 2 = Absent

[2] No. of nodes below the first inflorescence: 1 = 1-4 2 = 4-7 3 = 7-10 4 = 10 or more

[1] No. of nodes between early (1st - 2nd, 2nd - 3rd) inflorescences.

[1] No. of nodes between later-developing inflorescences.

[2] Pubescence on younger stems: 1 = Smooth (no long hairs) 2 = Sparsely hairy (scattered long hairs) 3 = Moderately hairy 4 = Densely hairy or wooly

4. LEAF (mature leaf beneath the 3rd inflorescence):

[1] Type: 1 = Tomato 2 = Potato ('Trip-L-Crop')

[2] Morphology *(choose illustration on pg. 5 of this form that is most similar)*

[3] Margins of major leaflets: 1 = Nearly entire 2 = Shallowly toothed or scalloped 3 = Deeply toothed or cut, esp. towards base

[3] Marginal rolling or wiltiness: 1 = Absent 2 = Slight 3 = Moderate 4 = Strong

[2] Onset of leaflet rolling: 1 = Early-season 2 = Mid-season 3 = Late season

4. LEAF (mature leaf beneath the 3rd inflorescence -- continued):

[2] Surface of major leaflets: 1 = Smooth 2 = Rugose (bumpy or veiny)

[2] Pubescence: 1 = Smooth (no long hairs) 2 = Normal 3 = Hirsute 4 = Wooly

5. INFLORESCENCE (make observations on 3rd inflorescence):

[1] Type: 1 = Simple 2 = Forked (2 major axes) 3 = Compound (much branched)

[05] Number of flowers in inflorescence, average

[1] Leafy or "running" inflorescences: 1 = Absent 2 = Occasional 3 = Frequent

6. FLOWER:

[1] Calyx: 1 = Normal, lobes awl-shaped 2 = Macrocalyx, lobes large, leaflike 3 = Fleshy

[1] Calyx-lobes: 1 = Shorter than corolla 2 = Approx. equalling corolla 3 = Distinctly longer than corolla

[1] Corolla color: 1 = Yellow 2 = Old gold 3 = White or tan

[2] Style pubescence: 1 = Absent 2 = Sparse 3 = Dense

[1] Anthers: 1 = All fused into tube 2 = Separating into 2 or more groups at anthesis

[2] Fasciation (1st flower of 2nd or 3rd inflorescence): 1 = Absent 2 = Occasionally present 3 = Frequently present

7. FRUIT (3rd fruit of 2nd or 3rd cluster): *For the first 5 characters below, match your variety with the most similar illustration on pg. 5 of this form.*

[4] Typical fruit shape:

[1] Shape of transverse section:

[2] Shape of blossom end:

[1] Shape of stem end:

[2] Shape of pistil scar:

---

[1] Abscission layer: 1 = Present (pedicellate) 2 = Absent (jointless)

[2] Point of detachment of fruit at harvest: 1 = At pedicel joint 2 = At calyx attachment

[9.9] mm length of pedicel (from joint to calyx attachment)

[048]	mm length of mature fruit	[047]	mm length, check var. no. [22]
[048]	mm diameter of fruit at widest point	[048]	mm diameter, check var. no. [22]
[066]	g weight of mature fruit	[064]	g weight, check var. no. [22]

[1] No. of locules: 1 = Two/THREE 2 = Three and four 3 = Five or more

[1] Fruit surface: 1 = Smooth 2 = Slightly rough 3 = Moderately rough or ribbed

[2] Fruit base color (mature-green stage): 1 = Light green ('Lanai', 'VF145-F5') 2 = Light gray-green ('Westover') 3 = Apple or medium green ('Heinz 1439 VF') 4 = Yellow green 5 = Dark green

[1] Fruit pattern (mature-green stage): 1 = Uniform green 2 = Green-shouldered 3 = Radial stripes on sides of fruit

[ ] Shoulder color if different from base: 1 = Dark green 2 = Grey green 3 = Yellow green

[5] Fruit color, full-ripe: 1 = White 2 = Yellow 3 = Orange 4 = Pink 5 = Red 6 = Brownish 7 = Greenish 8 = Other *(Specify)* _____

[3] Flesh color, full-ripe: 1 = Yellow 2 = Pink 3 = Red/Crimson 4 = Orange 5 = Other *(Specify)* _____

[1] Flesh color: 1 = Uniform 2 = With lighter and darker areas in walls

[3] Locular gel color of table-ripe fruit: 1 = Green 2 = Yellow 3 = Red

[2] Ripening: 1 = Blossom-to-stem end 2 = Uniform

9100121

7. FRUIT (3rd fruit of 2nd or 3rd cluster): Continued

[2] Ripening: 1 = Inside out 2 = Uniformly 3 = Outside in

[2] Epidermis color: 1 = Colorless 2 = Yellow

[1] Epidermis: 1 = Normal 2 = Easy-peel

[2] Epidermis texture: 1 = Tender 2 = Average 3 = Tough

[3] Thickness of pericarp . . . . . [3]

1 = Under 3 mm 2 = 3-6 mm 3 = 6-9 mm 4 = Over 9 mm

[1] Stem scar size: 1 = Small ('Roma') 2 = Medium ('Rutgers') 3 = Large

[ ] Core: 1 = Coreless (absent or smaller than 6x6 mm) 2 = Present

Thickness of pericarp, check var. no. [2][2]

8. RESISTANCE TO FRUIT DISORDERS (Use code: 0 = Unknown, 1 = Susceptible, 2 = Resistant)

[0] Blossom end rot
[2] Blotchy ripening
[2] Bursting
[2] Catface
[0] Cracking, concentric
[0] Cracking, radial
[0] Fruit pox
[0] Gold fleck
[0] Graywall
[0] Zippering
[ ] Other *(Specify)* _____

9. DISEASE AND PEST REACTION (Use code: 0 = Not tested, 1 = Susceptible, 2 = Resistant). NOTE: If claim of novelty is based wholly or in substantial part upon disease resistance, trial data should be appended. These should specify the method of testing, the reaction of the application variety, and reaction of well-known check varieties grown in the trial (identified by name).

VIRAL DISEASES:

[0] Cucumber mosaic
[0] Curly top
[0] Potato-Y virus
[0] Other virus *(Specify)* _____
[0] Tobacco mosaic, Race 0
[0] Tobacco mosaic, Race 1
[0] Tobacco mosaic, Race 2
[0] Tobacco mosaic, Race 2^2
[0] Tomato spotted wilt
[0] Tomato yellows

BACTERIAL DISEASES:

[0] Bacterial canker *(Corynebacterium michiganense)*
[0] Bacterial soft rot *(Erwinia carotovora)*
[0] Bacterial speck *(Pseudomonas tomato)*
[0] Bacterial spot *(Xanthomonas vesicatorium)*
[0] Bacterial wilt, *(Pseudomonas solanacearum)*
[0] Other bacterial disease *(Specify)* _____

FUNGAL DISEASES:

[0] Anthracnose *(Colletotrichum spp.)*
[0] Brown root rot or corky root, *(Pyrenochaeta lycopersici)*
[0] Collar rot or stem canker, *(Alternaria solani)*
[0] Early blight defoliation, *(Alternaria solani)*
[2] Fusarium wilt, Race 1, *(F. oxysporum f. lycopersici)*
[2] Fusarium wilt, Race 2
[0] Fusarium wilt, Race 3
[0] Gray leaf spot *(Stemphylium spp.)*
[0] Late blight, Race 0, *(Phytophthora infestans)*
[0] Late blight, Race 1
[0] Leaf mold, Race 1 *(Cladosporium fulvum)*
[0] Leaf mold, Race 2
[0] Leaf mold, Race 3
[0] Leaf mold, other races *(Specify)* _____
[0] Nailhead spot *(Alternaria tomato)*
[0] Septoria leafspot *(S. lycopersici)*
[0] Target leafspot *(Corynespora casiicola)*
[2] Verticillium wilt, Race 1 *(V. albo-atrum)*
[0] Verticillium wilt, Race 2
[ ] Other fungal disease _____
[ ] Other fungal disease _____

8

9100121

9. DISEASE AND PEST REACTION (Use code: 0 = Not tested, 1 = Susceptible, 2 = Resistant -- Continued)

INSECTS AND PESTS:

[0] Colorado potato beetle *(Leptinotarsa decemlineata)*
[2] Southern root knot nematode *(Meloidogyne incognita)*
[0] Spider mites *(Tetranychus spp.)*
[0] Sugar beet army worm *(Spodoptera exigua)*
[0] Tobacco flea beetle *(Epitrix hirtipennis)*
[0] Tomato hornworm *(Manduca quinquemaculata)*
[0] Tomato fruitworm *(Heliothis zea)*
[0] Whitefly *(Trialeurodes vaporariorum)*
[ ] Other *(Specify)* _____

POLLUTANTS:

[0] Ozone
[0] Sulfur dioxide
[ ] Other *(Specify)* _____

10. CHEMISTRY AND COMPOSITION OF FULL-RIPE FRUITS: Suggested test methods may be found in "Tomato Products," 5th ed., National Canners Assn. Bull. 27-L. Please specify test methods or give a reference to methods used. Fill in table below with values for the new variety and for at least one well-known check variety of similar type grown in the same trial. Specify names or numbers of check varieties.

	SUBMITTED VARIETY	Check Variety HM 3075	Check Variety UC 82	Check Variety NEMA 1401
pH	4.47	4.40	4.31	4.52
Titratable acidity, as % citric				
Total solids (dry matter, seeds and skin removed)				
Soluble solids, as °Brix	5.50	5.1	4.8	5.2

11. PHENOLOGY: Express length of developmental stages either as calendar days or as heat units (growing degree days), in degrees Celsius. If heat units are used, indicate the base temperature used in their calculation here _____ °C. See paper by Warnock under "References" for method. Give comparative data for at least one check variety; identify checks by name or by number from table on page 1.

	APPLICATION VARIETY	Check variety HM 3075	Check variety UC82	Check variety NEMA 1401
Seeding to 50% flower (1 open flower on 50% of plants)	59	65	58	58
Seed to once-over harvest *(if applicable)*				

[4] Fruiting season: 1 = Long ('Marglobe') 2 = Medium ('Westover') 3 = Short, concentrated ('VF 145') 4 = Very concentrated ('UC 82')

[3] Relative maturity in areas tested: 1 = Early 2 = Medium early 3 = Medium 4 = Medium late 5 = Late 6 = Variable (if relative maturity is known to differ by location or environment, please explain on separate sheet).

12. ADAPTATION: If more than one category applies, list all in rank order.

[0][1] Culture: 1 = Field 2 = Greenhouse

[ ][3], [4] Principal use(s): 1 = Home garden 2 = Fresh market 3 = Whole-pack canning 4 = Concentrated products 5 = Other *(Specify)* _____

[2] Machine harvest: 1 = Not adapted 2 = Adapted

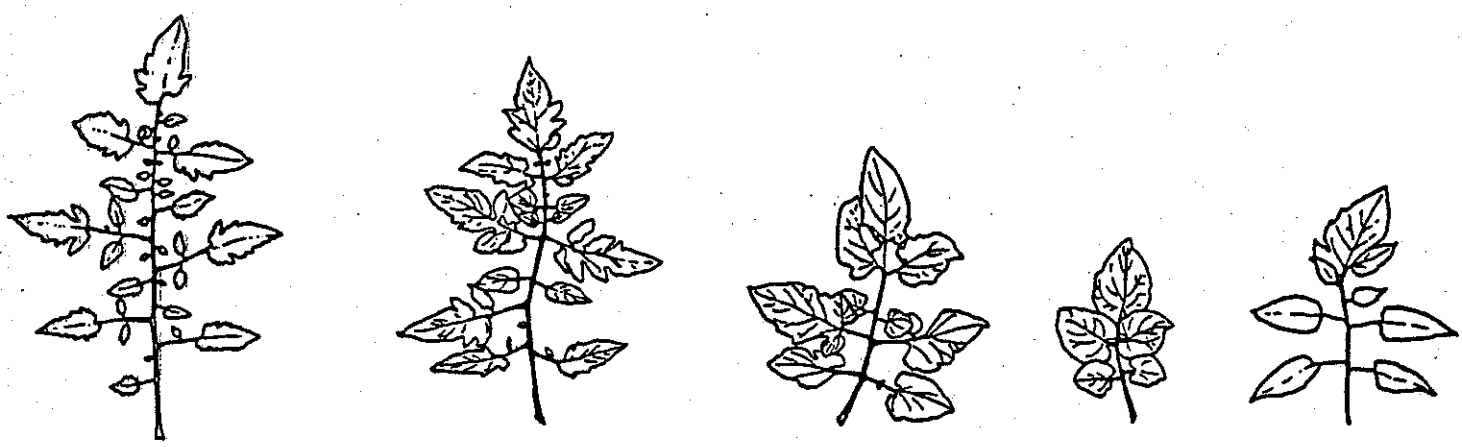
[9], [10], [11][ ] Regions to which adaptation has been demonstrated:
1 = Northeast 2 = Mid Atlantic 3 = Southeast 4 = Florida
5 = Great Plains 6 = South-central 7 = Intermountain West 8 = Northwest
9 = California: Sacramento and Upper San Joaquin Valley
10 = California: Coastal areas 11 = California: Southern San Joaquin Valley & deserts

9

ILLUSTRATIONS OF TOMATO LEAF AND FRUIT CHARACTERISTICS

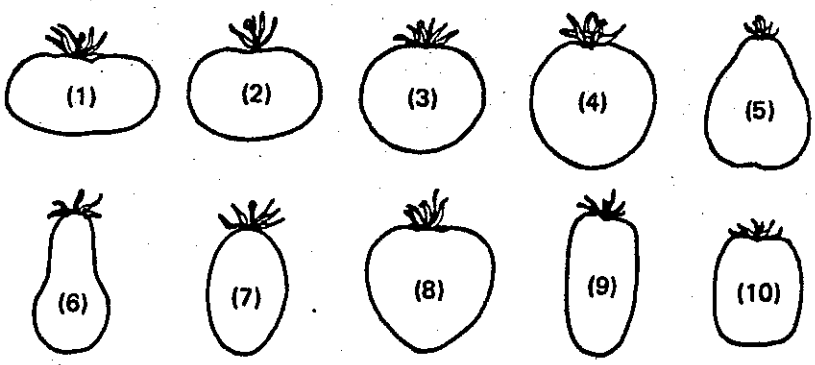
9100121

4. LEAF: Morphology:



(1) (2) (3) (4) (5)

7. FRUIT: Typical fruit shape:



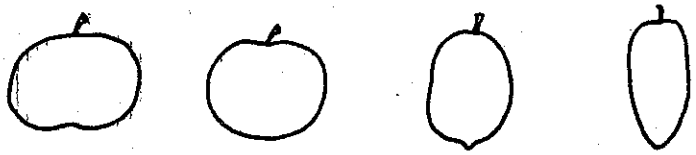
Shape of transverse section:

1=round 2=flattened 3=angular 4=irregular

Shape of stem end:

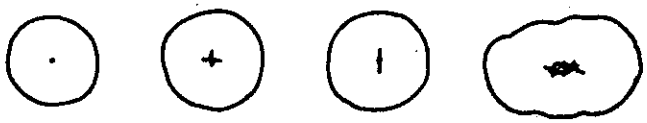
1=flat 2=indented

Shape of blossom end:



1=indented 2=flat 3=nippled 4=tapered

Shape of pistil scar:



1=dot 2=stellate 3=linear 4=irregular

REFERENCES

Anonymous, 1976. All About Tomatoes. Ortho Books, Chevron Chemical Co., San Francisco. In three volumes: Midwest/Northeast Edition, West Edition, and South Edition

Ware, G.W. & J. P. McCollum, 1968. Producing Vegetable Crops. The Interstate Printer & Publishers, Inc., Danville, Illinois. Chapter 30, pp. 451-473, "Tomatoes".

Warnock, S.J. 1978. Using Tomato Heat Units. Leaflet No. 6, Campbell Institute for Agricultural Research, Camden, NJ. 10 p.

Webb, R.E., T. H. Barksdale, & A. K. Stoner, 1973, "Tomatoes", pp. 344-361, In: Nelson, R.R. (Ed.), Breeding Plants for Disease Resistance. Pennsylvania State University Press, University Park.

Young, P.A. & J.W. MacArthur, 1947. Horticultural characters of tomatoes. Bull. Texas Agric. Exper. Station No. 698.

10

EXHIBIT D

Disease Protocols: Additional Description of the Variety

1. Fusarium Race 1 Test

Fusarium race 1 resistance was screened using a root-dip technique. Seedlings in the cotyledon stage of growth were dipped in a spore suspension of at least 1 x 10^6 and allowed to soak for at least one minute. A pure culture of Fusarium oxysporium f. sp. lycopersici, race 1 grown on potato dextrose agar produced the spores. Readings were made at approximately three to four weeks following inoculation or when a susceptible check variety (EarlyPak7) developed a high percentage of wilted plants.

2. Fusarium Race 2 Test

Fusarium race 2 resistance screening methodology was identical to Fusarium race 1 except race 2 innoculum was applied.

3. Southern Root Knot Nematode Test

Test lines were sown in a mixture of equal parts Sunshine #3 potting mix (McAliff distributors) and sterilized sand. Plants were grown to stage of second leaf expansion - approximately 3" high. One cup of 1 part nematode to 1 part #3 potting mix was placed in a 1/2 inch deep furrow adjacent to each test line. Flats were then lightly misted. Flats were kept below 30 degrees centigrade during the next 6 weeks. At that time, test lines were pulled carefully from the soil and roots were thoroughly washed. Presence of root galls indicated a susceptible variety.

EXHIBIT E

Statement of the Basis of Applicant's Ownership

Harris Moran Seed Company, INC. is the owner of ORION. This cultivar was developed solely from the company funds.